Quiz Tomorrow on Sound:

- Concepts
- Equations

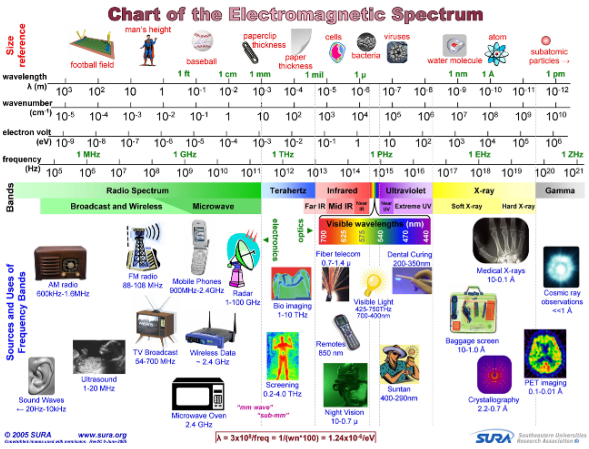
$$T = \frac{1}{f} \qquad V = \lambda f$$

$$I = \frac{P}{4\pi r^2}$$

$$f_n = \frac{nV}{2L} \qquad n = 1, 2, 3 \ldots$$

$$f_n = \frac{nV}{4L} \qquad n = 1, 3, 5, \ldots$$

Light Notes 4th Block 12.6.11



- Light:
  - Technical name is electromagnetic radiation
  - Wave/particle duality:
    - We can think of light as either a wave or a particle.
    - Experiments have shown both to be true.
    - For a wave, double-slit experiment.
    - For a particle (called a photon), experiment was the photoelectric effect.

- Equations:

$$c = \lambda f = \frac{\lambda}{T}$$

↳ speed of light in a vacuum

3E8 m/s

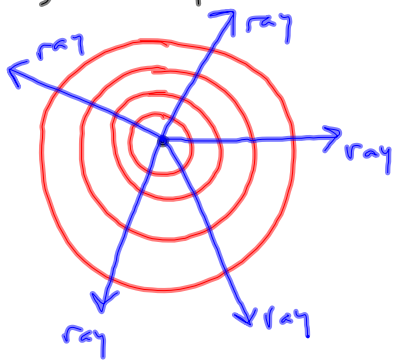
1 lightyear = 9.4608E15 m

- Equations continues

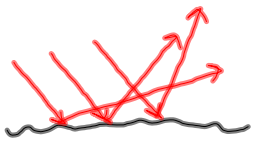
$$E = hf$$

- E → energy
- f → frequency
- h → Planck's constant $6.626E-34\ J \cdot s$

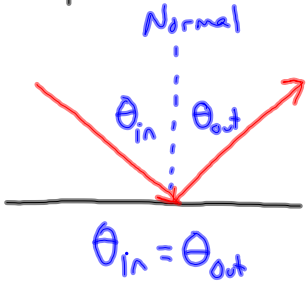
- Light is produced in all directions



- what happens when light hits something?
  - Absorption
  - Reflection
  - Transmission
- Reflection:
  1. Diffuse

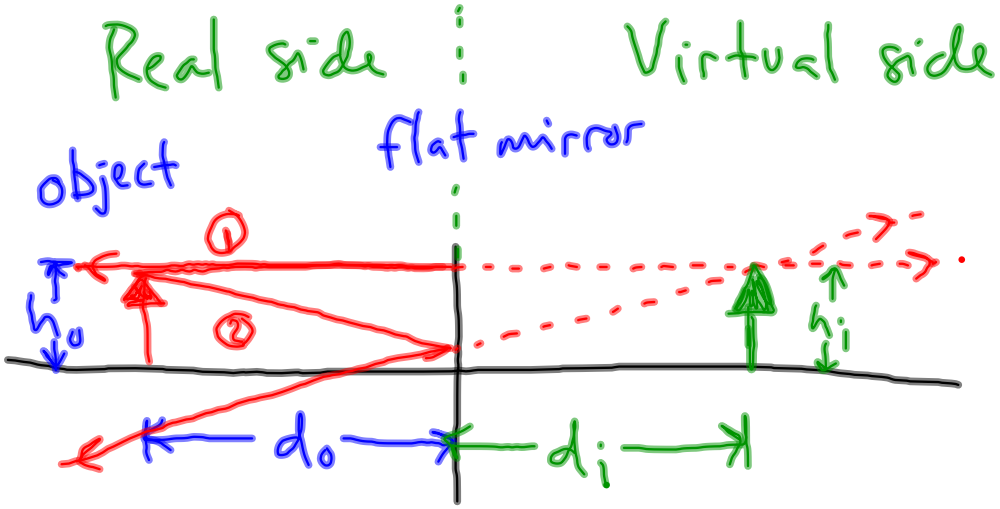


  2. Spectral



$\theta_{in} = \theta_{out}$

- Flat Mirrors:



h_o = object height

d_o = object distance from mirror

h_i = image height

d_i = image distance from mirror